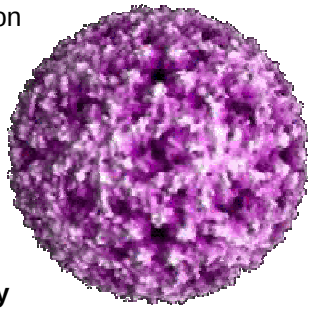
HIV/HCV Transmission Via Nonintact Skin (9/03)

Transmission of HIV and hepatitis C virus from a nursing home patient to a health care worker. Beltrami EM, Kozak A, Williams IT, Saekhou AM, Kalish ML, Nainan OV, Stramer SL, Fucci MH, Frederickson D, Cardo DM. Am J Infect Control 2003;31:168-175.



This article reports a case of simultaneous HIV and hepatitis C virus (HCV) transmission from a nursing home patient to a health-care worker (HCW) whose HIV and HCV infections were diagnosed during routine blood-donor screening. The HCW, a nursing-home aide, had no nonoccupational risk factors for HIV or HCV infection but provided care for an HIV-infected patient with dementia and urinary and fecal incontinence. The HCW had numerous exposures to the patient's emesis, feces and urine to unprotected chapped and abraded hands. Testing showed that the HCW's and patient's viruses were very closely related. **HIV and HCV transmission from the patient to the HCW appears to have occurred through nonintact skin exposure. Bloodborne pathogen transmission may have been prevented in this situation by consistent, unfailing use of barrier precautions.**

DIS Comment: Exposure to bloodborne pathogens poses a serious risk to health-care personnel. Simultaneous transmission of HIV and HCV has been reported after needlestick injury and mucous membrane exposure in health-care settings. Although transmission of HIV and HCV through occupational exposure does occur, HIV and HCV are not transmitted efficiently in this setting. The average risk of HIV transmission after a percutaneous exposure to HIV-infected blood has been estimated to be approximately 0.3%.[1] The average risk of anti-HCV seroconversion after a percutaneous exposure to HCV-infected blood is 1.8%.[2-5] Episodes of HIV transmission after nonintact skin exposure have been documented,[6] but the average risk for transmission by this route is estimated to be less than 0.09%.[7] This case report is the first documenting HCV transmission after nonintact skin exposure (e.g., skin that is abraded, chapped).

Gloves protect dental health-care personnel from direct exposure through cuts and abrasions, which can be often visually undetected on the hands. However, gloves often have small, unapparent defects or may be torn during use, or hands become contaminated during their removal.[8-19] Also, gloves fail with exposure to mechanical (e.g., sharps, fingernails, jewelry) and chemical (e.g., dimethyacrylates) hazards and over time. Several studies have shown that medical and dental health-care personnel are frequently unaware of small tears in gloves that occur during use.[18, 20-22] Healthy intact skin is the primary defense against infection and transmission of pathogens. Therefore, in addition to wearing gloves, it is important to practice proper hand hygiene and maintain healthy intact skin on the hands.

Prevention of blood exposures is the primary way to prevent occupational HIV and HCV infection. Exposure control plans should include education on Standard Precautions, provision of personal protective equipment for employees at risk for blood and body fluids, and the routine use of engineering and work practice controls to eliminate percutaneous injuries. In addition, personnel should be encouraged to report all occupational exposures. Postexposure management is an important component of an infection control program to prevent infection after an occupational exposure incident.

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